

APR 28 2003

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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 11

## Complete if Known

Application Number	09/844,435
Filing Date	04/30/01
First Named Inventor	Lawrence Loomis
Group Art Unit	1651
Examiner Name	Unassigned
Attorney Docket Number	38228-0006

## U.S. PATENT DOCUMENTS

Examiner Initials	Cite No.	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code <sup>1</sup> (if known)			
[Signature]	1	US- 6056954	05/02/00	Fischetti, et al	
	2	US- 5997862	12/07/99	Fischetti, et al	
	3	US- 5985271	11/16/99	Fischetti, et al	
	4	US- 5688501	11/18/97	Merril, et al	
	5	US- 4742981	05/10/88	Converse	
	6	US- 2019789	11/05/35	Mahannah	
	7	US- 2763931	09/25/56	McMillan	
	8	US- 5479732	01/02/96	Burch, et al	
	9	US- 3465445	09/09/69	Fisher	
	10	US- 2315260	03/30/43	Lancaster	
	11	US- 5604109	02/18/97	Fischetti, et al	
	12	US- 5260282	11/09/93	Robinson, et al	
	13	US- 4957686	09/18/90	Norris	
	14	US- 6017528	01/25/00	Fischetti, et al	
	15	US- 6132970	10/17/00	Stemmer	
	16	US- 3852424	12/03/74	Gaumann, et al	
	17	US- 6264945	07/24/01	Fischetti, et al	
	18	US- 6254966	07/03/01	Fischetti, et al	
	19	US- 6248324	06/19/01	Fischetti, et al	
	20	US- 6238661	05/29/01	Fischetti, et al	

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## FOREIGN PATENT DOCUMENTS

Examiner Initials	Cite No.	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>2</sup>
		Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> (if known)				
[Signature]	21	EP-0510907 A 2	10/28/92	Agricultural & Food Res.		
	22	WO-9702351	01/23/97	CIBA Geigy AG, et al.		
	23	WO-9607329	03/14/96	Univ. Maryland		
	24	WO-9904809	02/04/99	Ambi, Inc.		
	25	FR-2357246	02/03/78	Martinez		
	26	WO-9531562	11/23/95	Quest International B.V.		
	27	EP-587541 A1	03/16/94	Tecnogen ScpA		

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2. Applicant's full citation designation (number optional). See Kind Codes of USPTO Patent Documents at [www.uspto.gov/patents/forms/1449a/1449a.pdf](http://www.uspto.gov/patents/forms/1449a/1449a.pdf) or MPER 601.04. Enter Office that issued the document, by the two-letter code (AIPO Standard S1.3). For Japanese patent documents, the indication of the year of the document is required.

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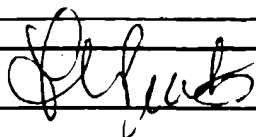
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EP	28	US- 6056955	05/02/00	Fischetti, et al	
	29	US- 5882631	03/16/99	Suga, et al	
	30	US- 5741487	04/21/98	Asai, et al	
	31	US- 6112887	09/05/00	Mori, et al	
	32	US- 4122158	10/24/78	Schmitt	
	33	US- 3983209	09/28/76	Schmitt	
	34	US- 4885163	12/05/89	Shaar, et al	
	35	US- 6177554	01/23/01	Woo, et al	
	36	US- 6187757	02/13/01	Clackson, et al	
	37	US- 5162226	11/10/92	Beachey, et al	
J	38	US- 6335012	01/01/02	Fischetti, et al	
	39	US- 6326002	12/04/01	Fischetti, et al	
	40	US- 6277399	08/21/01	Fischetti, et al	
	41	US- 4062941	12/13/77	Davies	
	42	US- 5571667	11/05/96	Chu, et al	
	43	US- 5514602	05/07/96	Brooks Jr, et al	
	44	US- 5500350	03/19/96	Baker, et al	
	45	US- 5384265	01/24/95	Kidwell, et al	
	46	US- 4361537	11/30/82	Deutsch, et al	
	47	US- 5120643	06/09/92	Ching, et al	

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EP	48	WO-9323544	11/25/93	The University Court of the University of Glasgow		
	49	EP-0293249 A1	11/30/88	Amrad Corporation Limited		
	50	EP-0646646 A2	04/05/95	Bristol-Myers Squibb Company		
	51	EP-0359873 A1	03/28/90	The Public Health Research Inst. of the City of New York		

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[Signature]	52	US-4948726	08/14/90	Longoria	
	53	US- 4459361	07/10/84	Getter	
	54	US- 4552939	11/12/85	Gould, et al	
	55	US- 4313734	02/02/82	Leuvening	
	56	US- 4847199	07/11/89	Snyder, et al	
	57	US- 4497900	02/05/85	Abram, et al	
	58	US- 4707543	11/17/87	Zollinger, et al	
	59	US- 5763251	06/09/98	Gasson	
	60	US- 6159688	12/12/00	Borchert, et al	
	61	US- 4784948	11/15/88	Scott, et al	
[Signature]	62	US- 5760026	06/02/98	Blackburn, et al	
	63	US- 5602040	02/11/97	May, et al	
	64	US- 4521252	06/04/85	Miyako, et al	
	65	US- 4355022	10/19/82	Rabussay	
	66	US- 4115546	09/19/78	Vidra, et al	
	67	US- 4116327	09/26/78	Eglinton, et al	
	68	US- 3929394	12/30/75	Hirsch, et al	
	69	US- 6083684	07/04/00	Gasson	
	70	US- 5360617	11/01/94	Gasson	
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		Number - Kind Code <sup>2</sup> (if known)			
[Signature] ↓ ✓	72	US- 5604110	02/18/97	Baker, et al	
	73	US- 5294369	03/15/94	Shigekawa, et al	
	74	US- 5372931	12/13/94	Friedman, et al.	
	75	US- 4933185	06/12/90	Wheatley, et al	
	76	US- 5108758	04/28/92	Allwood, et al	
	77	US- 4713249	12/15/87	Schroder	
	78	US- 4812445	03/14/89	Eden, et al	
	79	US- 3622677	11/23/71	Short, et al	
	80	US- 4369308	01/18/83	Trubiano	
	81	US- 5393658	02/28/95	Olsen	
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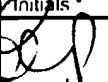

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Sheet 6 of 11

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Application Number	09/844,435
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First Named Inventor	Lawrence Loomis
Group Art Unit	1651
Examiner Name	Unassigned
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**OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS**

Examiner Initials *	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	84	BABENKO et al. Enzymatic lysis of staphylococci in relation to their species and strain properties, 1990, Database Medline Online, US National Library of Medicine, Bethesda, MD, US, Database Accession No. 90297672 XP002170795, abstract only	
	85	BARTELL, et al., Origin of polysaccharide depolymerase associated with bacteriophage infection, Journal of Virology, March 1969, pp. 290-296 Vol. 3, No. 3	
	86	BEHNKE, et al., Cloning and expression in Escherichia coli, Bacillus subtilis and Streptococcus sanguis of a gene for staphylokinase - a bacterial plasminogen activator, Mol Gen Genet, December 1987, pp. 528-534, Vol. 210	
	87	BESSEN, et al., Chemical characterization of binding properties of opacity-associated protein II from Neisseria gonorrhoeae, Infection and Immunity, January 1987, pp. 141-147, Vol. 55, No. 1	
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	89	BOIZET, et al., Cloning, expression and sequence analysis of an endolysin-encoding gene of Lactobacillus bulgaricus bacteriophage mv1, Gene, 2000, pp. 61-67, Vol. 94	
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	91	YOUNG et al. Phages will out: strategies of host cell lysis, Trends in Microbiology, Volume 8 No. 3, March 2000, pp. 120-127	
	92	CORBET, et al., Soluble antigens obtained from influenza virus by treatment with non-ionic detergent, J Hyg, Camb., 1970, pp. 81-96, Vol. 68	
	93	CROUX, et al., Interchange of functional domains switches enzymes specificity: construction of a chimeric pneumococcal-clostridial cell wall lytic enzyme, Molecular Microbiology, 1993, pp. 1019-25, Vol. 9, No. 5	
	94	DIAZ, et al., Chimeric phage-bacterial enzymes - a clue to the modular evolution of genes, Proc. Natl Acad Sci USA, October 1990, pp. 8125-8129, Vol. 87	

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OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
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[Signature]	95	DIAZ, et al., Chimeric pneumococcal cell wall lytic enzymes reveal important physiological and evolutionary traits, Journal of Biological Chemistry, March 25, 1991, pp. 5464-5471, Vol. 266, No. 9	
	96	DIXON, et al., Lysostaphin: an enzymatic approach to staphylococcal disease. III. Combined lysostaphin-methicillin therapy of established staphylococcal abscesses in mice, The Yale Journal of Biology and Medicine, August 1968, pp. 62-68, Vol. 41, No. 1	
	97	FISCHEIT, et al., Size variation of the M protein in group A streptococci, Journal of Exp. Med., June 1, 1985, pp. 1384-1401, Vol. 161, No. 6	
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[Signature]	105	HAYASHI, et al., Effects of N-Acetylmuramidase from Streptomyces rutgersensis H-46 as a food preservative, Agric. Biol. Chem., December 1989, pp. 3173-3177, Vol. 53, No. 12	

Examiner Signature	[Signature]	Date Considered	11-20-03
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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[Signature]	106	HAYASHIDA, et al., Further characterization of PL-1 phage associated N-acetylmuramidase of Lactobacillus casei, Journal of General Microbiology, May 1987, pp 1343-1349, Vol 133, No 5	
	107	HIGUCHI, et al., Transfection of streptococcus sanguis by phage deoxyribonucleic acid isolated from streptococcus mutans. Infection and Immunity, March 1977, pp 945-949, Vol 15, part 3	
	108	HUAN, et al., Methicillin-resistant staphylococcus aureus infection and its treatment in burned patients. Chinese Journal of Surgery, 1994, Vol 32, No 4, abstract	
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	110	KOHLER, Systemic therapy with aerosols Aerosols in Medicine Principles, Diagnosis and Therapy, 1993, Elsevier Science Publishers, pp 303-319	
	111	LAWMAN, et al., Molecular cloning of the extracellular endodextranase of streptococcus salivarius, Journal of Bacteriology, December 1991, pp 7423-7428, Vol 173, No 23	
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	114	LOPEZ, et al., Architecture and domain interchange of the pneumococcal cell wall lytic enzymes, Genetics of Streptococci, Enterococci and Lactococci, Developments in Biological Standardization, 1995, pp 273-281, Vol 85	
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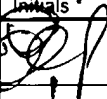

Sheet 9 of 10

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	117	MUKHLIS, et al . Characterization and Immunogenicity of HSV-1 antigens obtained following zwitterionic detergent treatment, Vaccine, September 1986, pp 191-196, Vol 4	
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11-20-03

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Sheet 10 of 11

**Complete if Known**

Application Number	09/844,435
Filing Date	04/30/01
First Named Inventor	Lawrence Loomis
Group Art Unit	1651
Examiner Name	Unassigned
Attorney Docket Number	38228-0006

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**OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS**

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
J	128	SHEEHAN, et al., Analysis of the catalytic domain of the lysis of the lactococcal bacteriophage Tuc2009 by chimeric gene assembling, FEMS Microbiology Letters, 1996, pp 23-28, Vol 140	
	129	SHEEHAN, et al., The lytic enzyme of the pneumococcal phage Dp-1. A chimeric lysis of intergeneric origin, Molecular Microbiology, 1997, pp 717-725	
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J. Loomis

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Sheet 11 of 11

**Complete if Known**

Application Number	09/844,435
Filing Date	April 30, 2001
First Named Inventor	Lawrence Loomis
Group Art Unit	1651
Examiner Name	Unassigned
Attorney Docket Number	38228-0006

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**U.S. PATENT DOCUMENTS**

Examiner Initials*	Cite No.	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number - Kind Code <sup>2</sup> (if known)			
	133	US-5605793	02/25/97	Stemmer	
	134	US-6355477	03/12/02	Fischetti et al	
	135	US-633*405	12/18/01	Rambukkana et al	
	136	US-6191659	02/20/01	Pancholi et al	
	137	US-5985654	11/16/99	Fischetti et al	
	138	US-5842314	11/24/98	Scott et al	
	139	US-5910441	06/08/99	Rocha et al	
	140	US-5786205	07/28/98	Fischetti et al	
	141	US-5976792	11/02/99	Cheung et al	
	142	US-5821088	10/13/98	Darzens et al	
	143	US-5723303	03/03/98	Fischetti et al	
	144	US-5643767	07/01/97	Fischetti et al	
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	147	US-5604109	02/18/97	Fischetti et al	
	148	US-5587288	12/24/96	Cheung et al	
	149	US-5556944	09/17/96	Fischetti et al	
	150	US-5352588	10/04/94	Fischetti et al	
	151	US-5968763	10/19/99	Fischetti et al	
	152	US-4784948	11/15/88	Scott et al	

**FOREIGN PATENT DOCUMENTS**

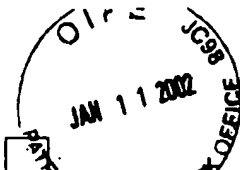
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		Filing Date	
		First Named Inventor	
		Group Art Unit	1616
		Examiner Name	BAAW, R.
Sheet 1 of 5	Attorney Docket Number		

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
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		6,254,866		Fischetti et al.	07-03-2001	
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		6,238,661		Fischetti et al.	05-29-2001	
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FOREIGN PATENT DOCUMENTS							
Examiner Initials	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)			
			WO 97 02351 A		CIBA GEIGY AG, et al.	01-23-1997	
			WO 96 07329 A		UNIV. MARYLAND	03-14-1996	
			EP 0 510 907 A		AGRICULTURAL & FOOD RES	10-28-1992	
			WO 99 04809 A		AMBI INC	02-04-1999	

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				Application Number	
				Filing Date	
				First Named Inventor	
				Group Art Unit	1619
				Examiner Name	BAWA
				Attorney Docket Number	
Sheet	2	of	5		

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elp		Reisenger, et al. (1998) "Characterization of Escherichia coli lysis using a family of chimeric E-L Genes" <i>Fems Microbiol Letter.</i> 164(1) p.159-167	
		Sheehan MM, et al. (1997) "The lytic enzyme of the Pneumococcal Phage Dp-1: a chimeric lysis of intergeneric origin." <i>Mol. Microbiol.</i> 25(4) p. 717-725	
		Young et al. (2000) "Phages will out: strategies of host cell lysis." <i>Trends in Microbiology.</i> 8(4) p. 120-127	
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		Sheehan MM, et al., (1997) "The Lytic Enzyme of the Pneumococcal Phage Dp-1: a Chimeric Lysin of Intergeneric Origin" <i>Mol. Microbiol.</i> 25(4) p. 717-25	
		Garcia P, et al. (1997) "Bacteriophages of Streptococcus pneumoniae: a molecular approach" <i>Microb. Drug Resist.</i> 3(20) 165-76.	
		Sheehan, MM, et al.(1996) "Analysis of the catalytic domain of the lysin of the lactococcal bacteriophage Tuc2009 by chimeric gene assembling." <i>FEMS Microbiol.Lett.</i> 14(1): p. 23-28.	
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		Lopez R, et al. (1995) "Architecture and Domain Interchange of the Pneumococcal Cell Wall Lytic Enzymes" <i>Dev. Biol. Stand.</i> 85 p. 273-81.	

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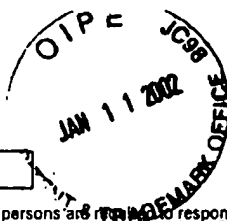
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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)		Application Number	
		Filing Date	
		First Named Inventor	
		Group Art Unit	1619
		Examiner Name	BWA
Sheet 4 of 5	Attorney Docket Number		

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials <sup>1</sup>	Cite No. <sup>2</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
SP		Croux, et al.(1993) "Interchange of Functional Domains Switches Enzymes Specificity: Construction of a chimeric pneumococcal-clostridial cell wall lytic enzyme." <i>Mol. Microbiology</i> . 9(5) p. 1019-25.	
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		Witte, A et al. (1998) "Characterization of <i>Escherichia coli</i> lysis using a family of chimeric E-L genes." <i>FEMS Microbiol. Lett.</i> , 164(1), p. 159-167	
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Examiner Signature		Date Considered	11-28-07
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## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet

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Application Number

Filing Date

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1619

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### OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

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		Young, Ry et al. (2000) "Phages will out: strategies of host cell lysis." <i>Trends in Microbiology</i> , 8(3) p 120-127.	
		Nelson, et al. (2001) "Prevention and elimination of upper respiratory colonization of mice by Group A Streptococci by using a bacteriophage lytic enzyme." <i>PNAS</i> . 98 (7) p. 4107-4112	
		Garcia, et al. (1987) "Purification and biochemical characterization of the pneumococcal bacteriophage Cp-1 lysin." <i>Journal of Virology</i> 61(8) p. 2573 - 2580.	
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